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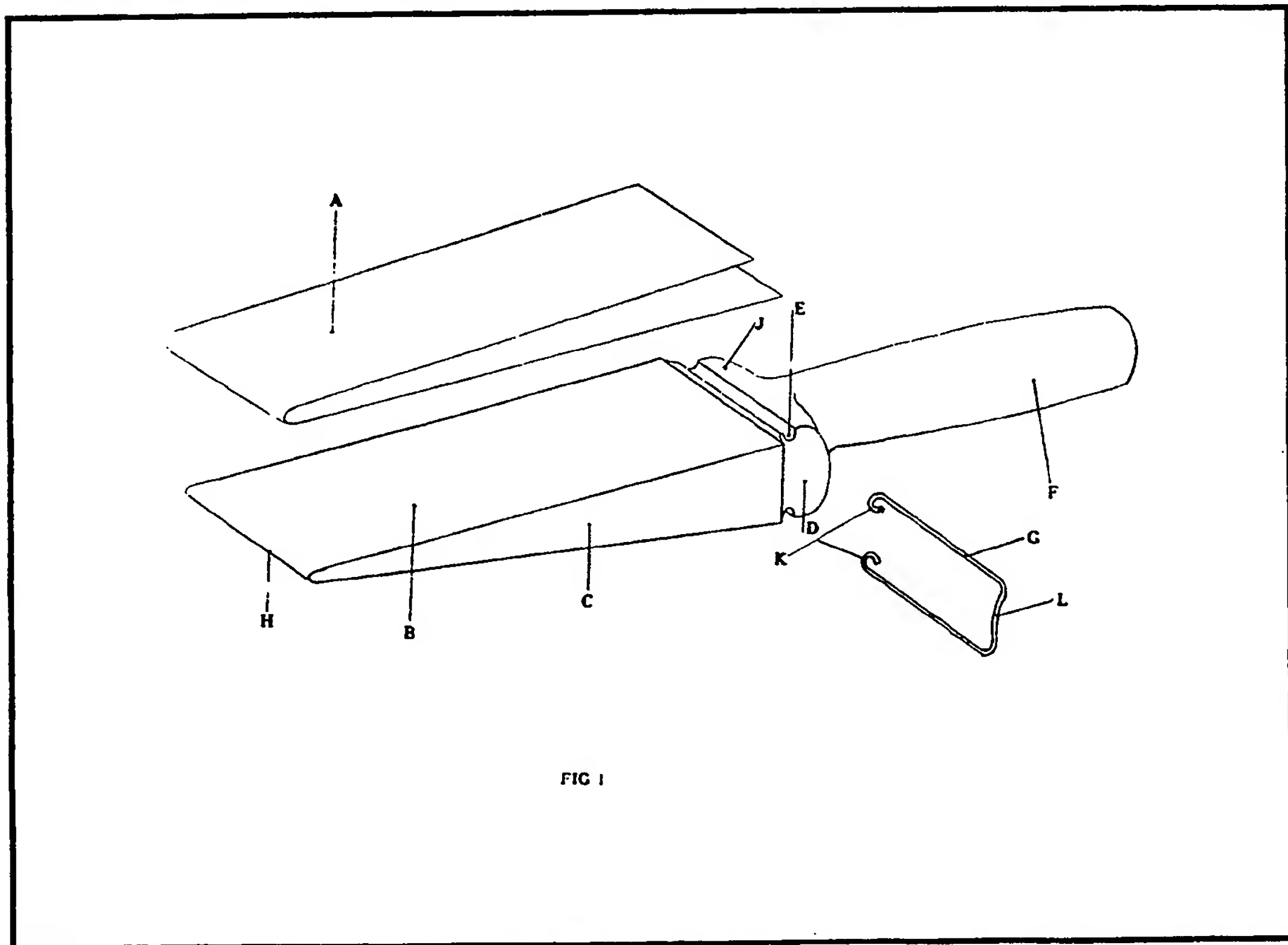
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## (54) Hand tools

(57) A hand tool for use as a sanding block with abrasive sheet material comprises a blade portion and a handle portion with a transition portion between them, and removable securing means for cooperation with the transition portion to hold a piece of abrasive sheet material placed upon the blade portion. The handle portion extends from the transition portion substantially in alignment with the blade portion. The shape of the blade portion may take various forms: in the form shown in the drawings it has rectangular upper and lower surfaces and the sheet material extends around the end of the blade oppo-

site from the handle. Preferably (as shown) such blade portion is wedge-shaped, tapering to a rounded-off edge at the said end. The removable securing means may comprise a U-shaped spring clip which is received in recessed parts of the transition portion (as shown) or two clips each in the form of a bar which are secured to opposite recessed parts of the transition portion by fastening means, conveniently screws. The body of the tool (i.e. the blade, handle and transition portions) may be produced by injection moulding of suitable plastics material, preferably by producing hollow halves and securing a pair of such halves together.



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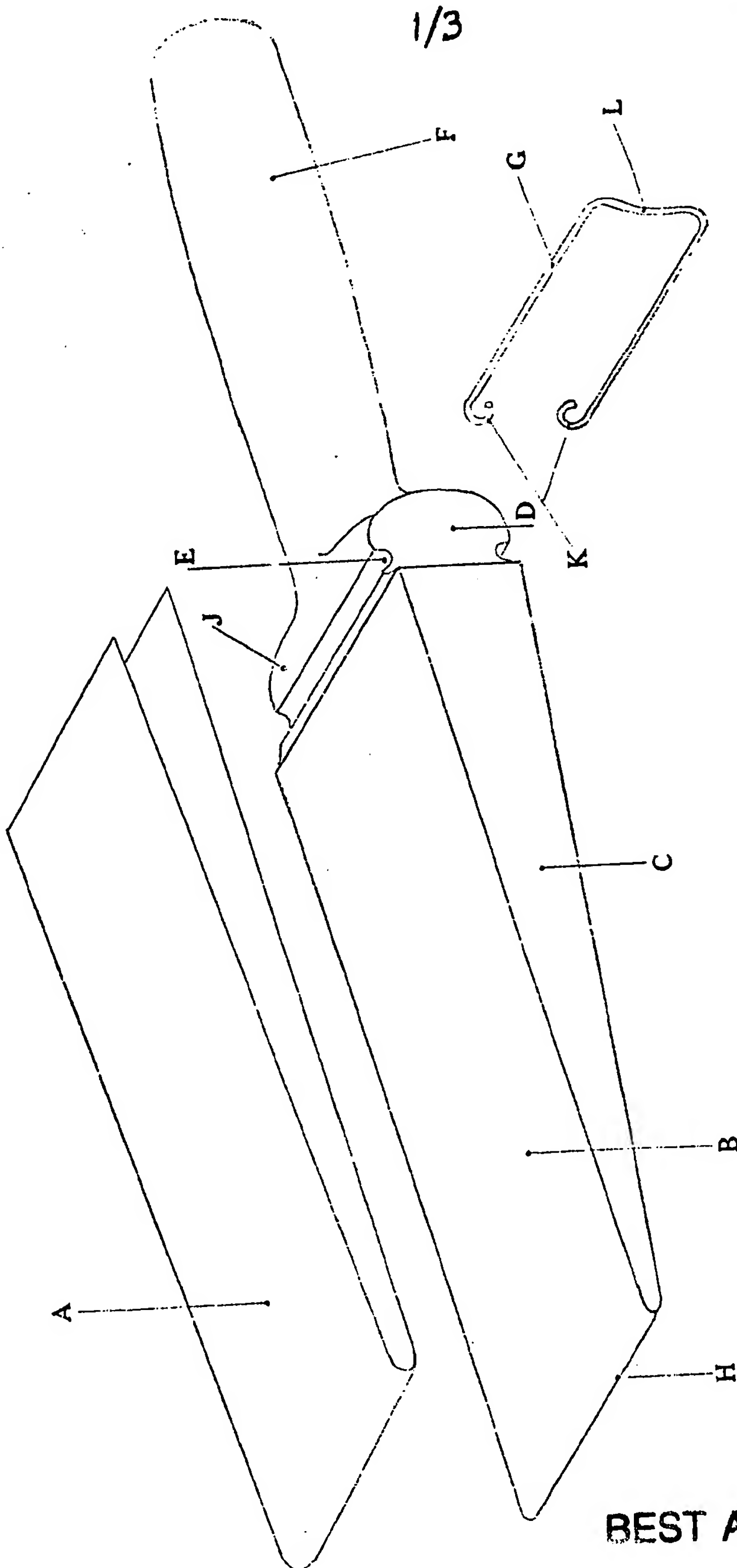


FIG. 1

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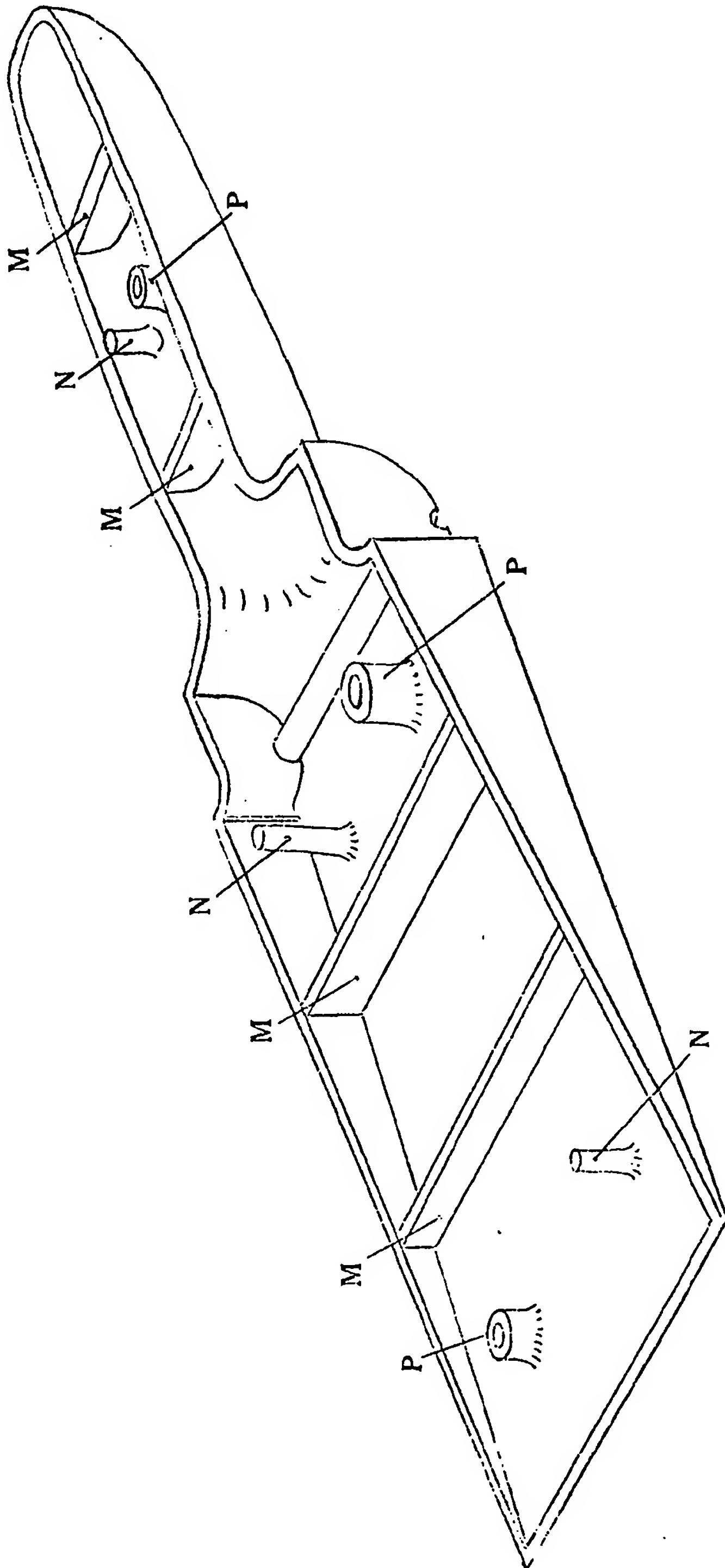


FIG. 2

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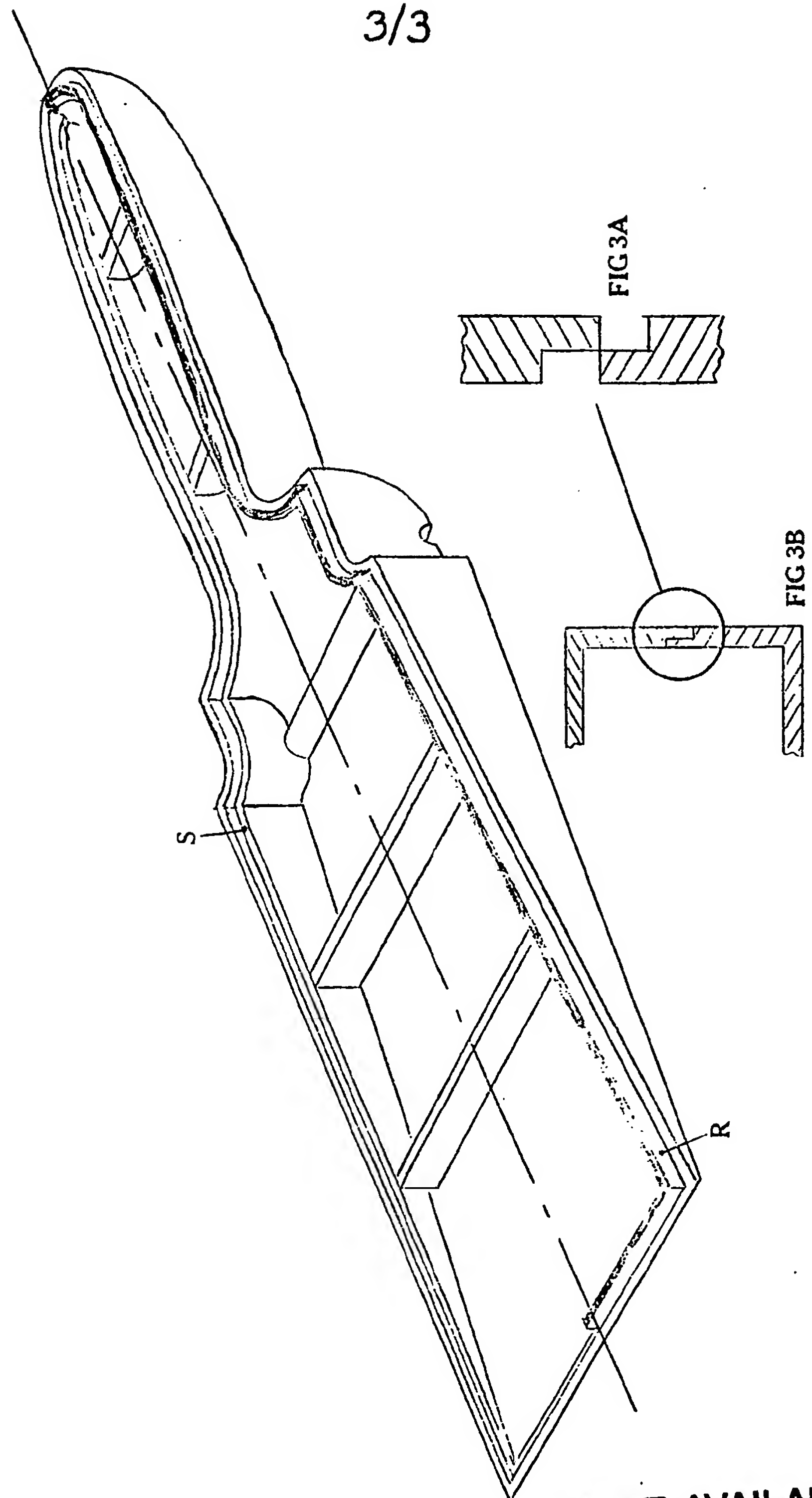


FIG 3

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## SPECIFICATION

### Hand tools

5 This invention relates to hand tools and more particularly to hand tools employing abrasive sheet material such as, for example, paper or cloth coated with abrasive grains.

10 It is of course known to use sand paper or emery paper or cloth wrapped round a rectangular block of wood which is commonly called a sanding block. This crude form of hand tool has certain drawbacks, particularly in regard to securing the abrasive sheet material to the block, handling the tool when in use, and wastage of abrasive sheet material because a large proportion of the surface of the piece of material wrapped round the block cannot be effectively used.

20 An object of the present invention is to provide an improved hand tool or sanding block which is more convenient for use in many situations and, at least in a specific form hereinafter described, provides for more conveniently securing abrasive sheet material and affords the possibility of more economical use of that material.

30 According to the present invention, in one aspect, there is provided a hand tool for use with abrasive sheet material and having the following features. It comprises a blade portion and a handle portion, with a transition portion between them, and a removable clip. The transition portion is at one end of the blade portion and the handle portion extends therefrom substantially in alignment with the blade portion. The transition portion is recessed to receive the clip in such a way that the clip will hold a piece of abrasive sheet material of suitable size and shape placed upon the blade portion and extending around the end of the blade opposite from the handle. The way in which the transition portion is dimensioned and recessed is such that the clip will not interfere with adjacent surfaces of articles or structures on which the sanding block is used.

50 The invention will now be described, by way of example, with reference to the accompanying drawings in which:

*Figure 1* is a perspective illustration of one form of hand tool embodying the invention;

55 *Figure 2* is a perspective illustration of components which may be used in the production of a hand tool according to Fig. 1;

*Figure 3* is a perspective view of an alternative form of such components; and

60 *Figures 3A and 3B* are cross-sectional details of the way in which components according to Fig. 3 are fitted together.

Referring first to Fig. 1, the hand tool or sanding block there illustrated (which is to be given the trade mark SANDA-PLANE) comprises a blade portion having rectangular upper and lower surfaces B and tapered sides C

with a rounded-off end H. At the opposite end there is a transition portion J leading to a handle F which is on the centre line of the major axis of the tool and is of such a size

70 that, having regard to the taper of the blade, it will be clear of any flat surface being abraded. The handle F may be of circular cross-section and contoured as shown to form a comfortable grip as with the handle of a file.

75 The tool includes a removable U-shaped clip G and the transition portion J has upper and lower recesses E in which the clip G secures the ends of an abrasive strip A which is folded over the tapered blade to lie along the upper and lower surfaces B and around the end H. The dimensions of the strip A should be such that the edges of the strip are flush with the sides T of the blade. The transition portion has side recesses D at opposite sides so that the ends of the clip G will be inboard of the sides C when the tool is in use.

85 The clip G has hooklike end portions K which serve to secure it in position, the clip being of springy material and its opposite end L being slightly curved inwards. This latter feature also enables the clip to be gripped for the purpose of removal from the recesses E.

90 For economy and convenience, the dimensions of the blade are preferably such that it can be used with a strip A of 11 inches by  $2\frac{1}{4}$  inches, the edges of which will be flush with the sides C of the blade when the strip A is placed in position. Such strips can be produced economically if a piece of abrasive paper of standard size (11 inches by 9 inches) is folded into four and sliced to produce four strips of 11 inches by  $2\frac{1}{4}$  inches for use with the SANDAPLANE tool.

100 The form of tool which has just been described is intended to be used after the manner of a file, pressure being applied with one hand to the exposed surface B while motion is imparted to the tool by the other hand through the handle F. During such use, the clip G prevents sideways movement of the abrasive strip A.

115 This form of tool enables very economical use to be made of the abrasive paper (or other abrasive sheet material), as it can be turned over to bring the opposite surface B into play.

120 As an alternative to the width of  $2\frac{1}{4}$  inches mentioned above, the blade may be made  $1\frac{1}{8}$  inches wide for use with abrasive strips produced by folding a standard sheet of abrasive paper into eight. The blade may, however, have any other desired dimensions for particular purposes, the abrasive strips A being cut to size accordingly.

125 Other variations contemplated are different cross-sectional shapes of blade, particularly circular; the wedge shaped blade having surfaces B convex instead of flat; and the blade being nontapered, i.e. having parallel surfaces

130 B.

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While such hand tools can be produced by various methods, including the shaping of wood or other solid material, it will be more economical to produce them in large quantities by injection moulding of suitable plastics material. Wood-grain polystyrene may be used, but further economy may be achieved by the use of other forms of styrene or other plastics material well known for making injection moulded articles.

Further economy can be achieved by making the tool hollow by producing "reversible" hollow halves and securing pairs of such halves together.

Referring now to Fig. 2, this shows a possible form of such reversible hollow halves for producing hand tools of the form shown in Fig. 1. The form of the hollow halves will be generally understood from the drawing, having regard to the foregoing description with reference to Fig. 1. It is pointed out, however, that it includes transverse stiffeners M which are flush with the upper edges of the sides of the moulded half; and pegs N which extend proud of the plane in which the upper edges of the sides of the moulding lie, these pegs N interengaging with corresponding sockets P when two such halves are put together and secured with a suitable adhesive material.

Referring now to Fig. 3, this shows an alternative form of reversible hollow halves which, while being generally similar to that of Fig. 2, does not have pegs and sockets and has a ridge R and slot S arrangement which will be apparent from the drawing. When two such halves are put together, engagement takes place in the manner shown in Fig. 3A, the fully engaged position being shown in Fig. 3B, again with the use of a suitable adhesive material.

#### CLAIMS

1. A hand tool for use with abrasive sheet material, comprising a blade portion and a handle portion with a transition portion between them, the handle portion extending from the transition portion substantially in alignment with the blade portion, and removable securing means for cooperation with the transition portion to hold a piece of abrasive sheet material of suitable size and shape placed upon the blade portion.

2. A hand tool according to claim 1, wherein the blade portion is wedge-shaped with tapered sides.

3. A hand tool according to claim 1 or claim 2, wherein the blade portion has a rounded-off end.

4. A hand tool according to any one of claims 1 to 3 wherein the blade portion has rectangular upper and lower surfaces.

5. A hand tool according to claim 4, the securing means cooperating with opposite surfaces of the transition portion, which are effectively adjacent to the upper and lower sur-

faces of the blade portion, the abrasive sheet material being placed on those surfaces of the blade portion and extending around the end of the blade.

6. A hand tool according to claim 2 or any one of claims 2 to 5 when dependent upon claim 2 wherein the handle portion is on the centre line of the major axis of the tool and is of such a size that, having regard to the taper of the blade, it will be clear of any flat surface being abraded.

7. A hand tool according to any one of claims 1 to 6, wherein the removable securing means comprises a clip fitting into a recessed part of the transition portion.

8. A hand tool according to claim 7, including two such clips fitting into opposite recessed parts of the transition portion.

9. A hand tool according to claim 7 or claim 8, including removable fastening means for securing the or each clip in position to hold the piece of abrasive sheet material.

10. A hand tool according to claim 9, wherein the removable fastening means comprises at least one screw.

11. A hand tool according to claim 10 when dependent upon claim 4, wherein the two clips each consist of a substantially rectangular bar and fit into rectangular recessed parts extending across opposite sides of the transition portion adjacent respectively to the upper and lower surfaces of the blade portion, each of the clip bars being secured to the transition portion by two screws which are spaced apart along the length of the bar.

12. A hand tool according to any one of claims 1 to 6, wherein the removable securing means comprises a removable spring clip for cooperation with recessed parts of the transition portion.

13. A hand tool according to claim 12 when dependent upon claim 4, wherein the removable clip is U-shaped and the transition portion has upper and lower recesses in which the clip secures the ends of an abrasive strip which is folded over the blade to lie along the upper and lower surfaces and around the end.

14. A hand tool according to claim 13, wherein the transition portion has side recesses at opposite end so that the ends of the clip will be inboard of the sides of the blade when the tool is in use.

15. A hand tool according to claim 14, wherein the clip has hooklike end portions which serve to secure it in position, the clip being of springy material and its opposite end being slightly curved inwards.

16. A hand tool according to claim 1, wherein the blade portion has curved surfaces.

17. A hand tool according to claim 16, wherein the blade portion is wedge-shaped with convex upper and lower surfaces.

18. A hand tool according to claim 16, wherein the blade portion has a circular cross-

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sectional shape.

19. A hand tool according to claim 1, wherein the blade portion is non-tapered having parallel surfaces.

5 20. A hand tool according to any one of the preceding claims, produced by injection moulding of suitable plastics material to form the body of the tool comprising the blade, handle and transition portions.

10 21. A hand tool according to claim 20, wherein the plastics material is a suitable form of styrene.

22. A hand tool according to claim 21, wherein the plastics material is wood-grain polystyrene.

15 23. A hand tool according to any one of claims 20 to 22, made by producing hollow halves and securing a pair of such halves together.

20 24. A hand tool substantially as herein described with reference to the accompanying drawings.

25 25. A hand tool according to claim 24, substantially as illustrated in Fig. 1 of the drawings.

26. A hand tool according to claim 25, made up of components substantially as described with reference to Fig. 2 of the drawings.

30 27. A hand tool according to claim 25, made up of components substantially as described with reference to Figs. 3, 3A and 3B of the drawings.

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